Remarks

Claims 1-56 remain pending in this application after entry of this paper. Claims 1-56 have been rejected. Applicants believe that the invention is patentable.

Claims 21, 24-27, 49 and 52-55 stand rejected under 35 U.S.C. 112, second paragraph. In rejecting claims 21 and 49, the Examiner states that it is not clear what is the difference between "packet rate" and "data rate," and that there are no clear definitions for "packet rate" and "data rate." In rejecting claims 24-25 and 52-53, the Examiner states that there is no clear definition for "the amount of the flow in terms of data." Similarly, in rejecting claims 26-27 and 54-55, the Examiner states that there is no definition for "the amount of the flow in terms of packets." Applicants contend that the specification clearly describes packet rate, data rate, flow in terms of packets, and flow in terms of data. In light of the specification, these terms have clear meaning when recited in the claims.

Applicants direct the Examiner's attention to the specification at page 6, lines 13-18; page 13, line 28- page 14, line 16; and Figure 14. Specifically, page 14, lines 10-16 states that "the subscriber is simultaneously subjected to sustain rate and burst size limits in terms of packets and subjected to sustain rate and burst size limits in terms of data (bits or bytes)." It is well understood that data refers to bits or bytes and that packets contain (or package) data. The fact that packets contain data is also explained in the background art at page 1, line 8 - page 2, line 2. For these reasons, Applicants respectfully request that the Examiner withdraw the rejections under 35 U.S.C. 112, second paragraph.

The application includes eight independent claims. These claims are believed to be patentable over the prior art for reasons given below. The remaining, dependent, claims are also believed to be patentable for at least these reasons.

Claim 1 recites a method of traffic regulation in a packet communication network. The network includes a traffic regulator for regulating traffic at the packet level.

The traffic regulator includes a bucket mechanism. The bucket mechanism includes a token bucket associated with a subscriber. The token bucket is configured to receive new tokens at a fill rate and configured with a bucket depth. The method comprises handling packets that arrive at the regulator in accordance with the token bucket configuration, and measuring a demand placed on the packet communication network by the subscriber. The method further comprises dynamically adjusting the token bucket configuration for the subscriber based on the demand. The prior art fails to suggest "dynamically adjusting the token bucket configuration for the subscriber based on the demand" in combination with the other recited limitations.

Claim 17 recites a method of traffic regulation in a packet communication network. The method comprises handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy on the current number of tokens present. The method further comprises measuring a demand placed on the packet communication network by the subscriber by monitoring the number of tokens present in the token bucket. The method further comprises dynamically adjusting the token bucket configuration for the subscriber based on the demand. The prior art fails to suggest "dynamically adjusting the token bucket configuration for the subscriber based on the demand" in combination with the other recited limitations.

Claim 21 recites a method of traffic regulation in a packet communication network. The network includes a traffic regulator for regulating traffic at the packet level. The traffic regulator includes a bucket mechanism. The bucket mechanism includes first and second token buckets associated with a subscriber. The first token bucket is configured to receive new tokens at a first fill rate and configured with a first bucket depth. The second token bucket is configured to receive new tokens at a second fill rate and has a second bucket depth. The method comprises handling packets that arrive at the regulator in accordance with the first and second token bucket configurations. The first token bucket uses tokens to regulate the packet flow in terms of packet rate, and the second token bucket uses tokens to regulate the packet flow in terms of data rate. In this way, a particular packet is subjected to handling in

accordance with both the first token bucket and the second token bucket. The prior art fails to suggest this particular approach to using first and second token buckets wherein the first token bucket regulates in terms of packet rate, and the second token bucket regulates in terms of data rate in combination with the other recited limitations.

Claim 23 recites a method of traffic regulation in a packet communication network. The method comprises handling packets that arrive at the regulator in accordance with the token bucket configuration. The token bucket uses tokens to regulate the packet flow by removing tokens from the token bucket when handling packets. The amount of tokens to be removed is based on the amount of the flow and is further based on a classification of the flow. The prior art fails to suggest "the amount of tokens to be removed being based on the amount of the flow and being further based on a classification of the flow" in combination with the other recited limitations.

The remaining independent claims recite programmed packet-level devices and are believed to be patentable for the reasons given above.

Claims 1-3, 9-10, 13, 29-31, 37-38 and 41 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tang (U.S. Patent No. 6,373,824). Regarding independent claims 1 and 29, these claims recite combinations including "dynamically adjusting the token bucket configuration for the subscriber based on the demand," while the remaining claims are dependent claims. Tang fails to suggest dynamic adjustment of the token bucket configuration for the subscriber based on the demand. Tang describes a method and system for measuring data traffic with parameters of the token bucket traffic shaping model. Tang is about measuring or specifying network traffic. Tang describes performing calculations based on measurements of data traffic.

However, there is no suggestion of dynamic adjustment of a token bucket configuration based on demand. The Examiner makes reference to column 2, lines 35-41 and column 3, lines 1-15. Column 2, lines 35-41 only describes measuring traffic parameters

including token bucket capacity and token generation rate. Although Tang describes calculating these values by observing traffic, there is no suggestion of dynamic token bucket configuration adjustment for the subscriber based on the demand. Column 3, lines 1-15 describes measuring the rate and the burstiness of traffic and notes that the traffic source need not be a token bucket shaper. Nevertheless, there is no suggestion of dynamic token bucket configuration adjustment for the subscriber based on the demand.

Claims 4 and 32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tang. These claims are dependent claims and are believed to be patentable.

Claims 5-8, 14-20, 33-36 and 42-48 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tang in view of Wang (U.S. Patent No. 6,748,435). Independent claims 17 and 45 recite the dynamic adjustment of the token bucket configuration which is not suggested by Tang for reasons given above. Regarding Wang, this patent describes random early demolition and promotion markers. However, Wang also fails to suggest dynamic adjustment of the token bucket configuration for the subscriber based on the demand. Thus, Wang fails to overcome the deficiency of Tang. The remaining claims are dependent claims.

Claims 11-12, 21-22, 39-40 and 49-50 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tang in view Liu (U.S. Patent Application No. 2004/0081095 A1). Independent claims 21 and 49 recite a first token bucket using tokens to regulate the packet flow in terms of packet rate and a second token bucket using tokens to regulate the packet flow in terms of data rate such that a particular packet is subjected to handling in accordance with both the first token bucket and the second token bucket, in combination with other limitations. The remaining claims are dependent claims. Tang fails to suggest this claimed subject matter. The Examiner relies on Liu as a secondary reference in making the rejection based on the combination of references.

Liu describes a policing mechanism for resource limited wireless MAC processors. However Liu fails to overcome the deficiency of Tang, and there is no suggestion

to combine these references to achieve the claimed invention. Applicants' claims specifically recite subjecting packets to handling in accordance with both the first token bucket and the second token bucket so as to regulate packet flow in terms of data rate and in terms of packet rate. It must be appreciated that this subject matter is more detailed than simply using multiple regulators. Although Liu does describe enforcing policing at both the host software and the embedded firmware, there is no suggestion of the particularly claimed subject matter. The Examiner notes that "it is well known in the art to use two or more buckets stacked together for finer control." Again, the claims recite a specific arrangement of first and second token buckets that handle flow in different ways and that is not suggested by the prior art. The claims recite more detail than simply using multiple regulators.

Claims 23-28 and 51-56 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tang in view of Berger (U.S. Patent No. 5,274,644). Independent claims 23 and 51 recite "the amount of tokens to be removed being based on the amount of the flow and being further based on a classification of the flow," in combination with other limitations. The remaining claims are dependent claims. The prior art fails to suggest the claimed combinations. The Examiner relies on Berger as a secondary reference and makes the rejection based on the combination of references. As acknowledged by the Examiner, Tang does not teach that the amount of tokens to be removed is based on the amount of the flow and further based on a classification of the flow. For this aspect, the Examiner relies on Berger. However, Berger fails to overcome this deficiency.

Berger describes rate-based multiclass access control. Berger does describe the use of a token bank per class, plus a spare bank. However, the claims to not recite the use of a token bank per class. In contrast, the claims recite the amount of tokens to be removed (from the token bucket) being based on the amount of the flow and being further based on a classification of the flow. This is different than using different token buckets for different classes of flow. The claimed features are not suggested by Berger and the combination of references fails to suggest the claimed invention.

Reconsideration of this application, and allowance of all pending claims is respectfully requested.

Respectfully submitted,

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